

Application No.: 10/791,938
Filing Date: March 3, 2004
Page: 6

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REMARKS

Claims 1 through 3, 5, 7 and 9 through 17 and 22 through 24 are pending in the application.

Claim 1 has been amended to reflect that advantageous plastic films have 10 or less holes with a diameter of from about 2 to 6 mm per 1 000 m² of film surface. Support for this amendment can be found in the Application-as-filed, for example in Claim 9.

Claim 1 has further been amended to remove elements deemed immaterial to patentability. Support for this amendment can be found in the Application-as-filed.

Claim 9 has been canceled, as its subject matter has been incorporated into Claim 1.

Claim 24 has been amended to reflect advantageous embodiments in which the film consists of one rigid polyvinyl chloride film, metallization, and, optionally, one or more of coating, lacquer and printing. Support for this amendment can be found in the Application-as-filed, for example on Page 6, lines 1 through 22, as well as on Page 7, line 30 through Page 8, line 2, and Page 8, lines 15 through 20.

Reexamination and reconsideration of this application, withdrawal of all rejections, and formal notification of the allowability of the pending claims are earnestly solicited in light of the remarks which follow.

Application No.: 10/791,938
Filing Date: March 3, 2004
Page: 7

*The Claimed Invention is Patentable
In Light of the Art of Record*

Claims 1 through 3, 5, 7 and 9 through 17 and 22 through 24 stand rejected over Hughen et al (US 5,747,192) in view of Tyson (GB 11 86 531). Claims 15 and 22 through 24 stand rejected over Hughen in view of Tyson and further in view of Yoshiga et al (US 4,264,010).

Applicants respectfully reiterate that the cited references do not teach or suggest the claimed invention.

Hughen discloses a single ply label for dry cell batteries. (Col. 2, lines 43 – 67). The label is formed of a self-supporting, heat shrinkable, polymer film backing. The width of the film backing provides at its ends first and second opposed longitudinal edges and is sufficient for the backing to embrace the case of the battery. The length of the film backing is sufficient for the backing to extend beyond the length of the battery case. Suitable film backings include polypropylene and the like. (Col. 5, lines 51 - 54). The polymer film backing further supports a non-conductive pigmented layer formed of alkali-resistant ink. (Col. 4, lines 20 – 25 and Col. 6, lines 18 – 22).

Hughen expressly notes that the non-conductive pigmented layer eliminates the need for a metal layer, and this elimination is "critical" to the invention. (col. 4, lines 45 – 47). As alluded to within the outstanding Office Action, United States Patent No. 5,292,566, discussed within Hughen, includes a metal layer but does not include a shrink film layer. (Col. 1, line 60). Hughen further notes that the bond to the metal layer in US 566 is weak and susceptible to cracking. (Col. 1, lines 62 – 65). Hughen notes that films including multiple shrink layers present difficulties in matching the shrink characteristics of the layers, resulting in print distortion. (Col. 2, lines 12 – 15). Hughen, providing great detail as to the overall battery construction, is curiously silent as to the methods of forming the film backing.

Application No.: 10/791,938

Filing Date: March 3, 2004

Page: 8

Applicants respectfully reiterate that Hughen does not teach or suggest the claimed invention.

Applicants respectfully reiterate that Hughen fails to teach or suggest the recited rigid polyvinyl chloride film. Applicants respectfully reiterate that rigid polyvinyl chloride is a term which is well known in the art, and does not merely refer to a film's ability to be self-supporting.

Hughen, altogether silent as to the process to form the backing film, further does not teach or suggest calendared films, much less films which are calendared from 180 to 60 °C in the machine direction.

Nor does Hughen disclose advantageous films in which the number of holes with a diameter of from about 2 to 6 mm is smaller than or equal to about ten per 1 000 m² of film surface, as recited in the claims as-amended.

And Hughen most certainly does not teach or suggest calendared films which comprise a lubricant for improving processability, as recited in Claim 14.

Hughen does disclose some shrinkage perpendicular to the machine direction of the plastics film. However, Applicants respectfully reiterate that Hughen does not disclose a negative shrinkage of up to 10 %, as recited in Claim 2. Hughen instead merely teaches a negative shrinkage of up to 2 %. (US 192, Col. 5, line 34, indicating a lower limit of - 2 % shrinkage). In fact, Hughen considered as a whole teaches away from the beneficial embodiments of Claim 2 teaching a preference for positive transverse shrinkage, particularly a positive shrinkage of up to +5 % in the transverse direction. Applicants respectfully submit that the shrink range noted within the outstanding Office Action (citing US 192, Col. 5, lines 29 - 31 (discussing a "shrink back" range) is a positive shrinkage range, i.e. the film becomes shorter, and not to a negative shrinkage.

Application No.: 10/791,938

Filing Date: March 3, 2004

Page: 9

Hughen, disclosing a maximum negative heat shrinkage of 2% (i.e. - 2 %) can not teach or suggest advantageous embodiments in which the film has a negative heat shrinkage of from about 5 to 8 % in the direction perpendicular to the machine direction, as recited in Claim 23.

Nor does Hughen teach or suggest advantageous inventive films in which the film consists of one rigid polyvinyl chloride film, metallization, and, optionally, one or more of coating, lacquer and printing, as recited in Claim 24. Hughen instead teaches that a lack of metallization layer is critical to its invention. Hughen further teaches that conventional metallized laminates either included no shrink film, i.e. US 5,292,566, or more than one shrink layer.

Applicants thus respectfully reiterate that the claimed invention is patentable in light of Hughen, considered either alone or in combination with the remaining art of record.

Applicants respectfully reiterate that Tyson does not cure the deficiencies in Hughen.

Tyson is generally directed to a method for upholstering furniture by heat-shrinking a laminate. (Page 1, lines 10 - 20) The laminate includes a layer of non-woven fabric and a layer of flexible thermoplastic. (Page 1, lines 10 - 17) Suitable flexible thermoplastics include polypropylene. (Page 1, lines 40 - 45). The flexible thermoplastic may be prepared by any desired method, including casting, using undisclosed conditions (Page 1, lines 46 - 48). The flexible thermoplastic is laminated to a non-woven, and the resulting laminate subjected to a "forming" process, such as stretching, at elevated temperatures. (Page 1, line 63 - Page 2, line 8). The "formed" fabric laminate is then shrunk around an article of furniture, using an elevated air temperature selected to result in a fabric laminate temperature of about 70 °C. (Page 2, lines 90 - 91). Tyson's working example discloses a maximum induced shrinkage of 15 %, resulting in a fabric-laminate that was taunt against the resulting upholstered chair. (Page 2, lines 65 - 95).

Application No.: 10/791,938

Filing Date: March 3, 2004

Page: 10

Applicants respectfully reiterate that Tyson, expressly teaching the "forming" of a fabric-containing laminate at elevated temperatures, does not teach or suggest calendaring a plastics film alone at temperatures of from 180 to 60 °C, as recited in the claimed invention. In contrast to the opinion urged within the Office Action, Tyson is instead silent as to suitable temperatures at which its flexible thermoplastic material is to be formed, as is Hughen.

Tyson merely generically discloses a fabric-laminate "forming" step at a particular elevated temperature range, as noted within the outstanding Office Action. Tyson goes on to disclose that its fabric-laminates may be "formed" by stretching or a shaping-operation, such as vacuum forming or the like. Tyson's working example expressly teaches the deformation of its fabric laminate within a "biaxial stretching apparatus." Applicants respectfully submit that Tyson's forming processes are significantly different unit operations from the recited calendaring. Hence the temperature range associated with its fabric-laminate forming step can not be imputed to the recited inventive calendaring, in contrast to the opinion urged within the outstanding Office Action.

Applicants also respectfully reiterate that Tyson further does not teach or suggest the inventive rigid polyvinyl chloride films shrinking at the recited 115 to 125 °C. The Office Action points to a number of different temperatures. Applicants respectfully submit that Tyson's cited temperature of 140 °C is associated with his fabric-laminate forming step, not the subsequent shrinkage step. As correctly noted by the Examiner, Tyson expressly teaches that shrinkage occurs at a laminate temperature of 70 °C.

Applicants respectfully submit that the Office Action is incorrect in its assertion that the recited temperature is not associated with the film temperature. Applicants respectfully submit that the inventive films would be expected to equilibrate to the recited testing temperature of from about 115 to 125 °C, when held at temperature for the recited period of about 15 minutes.

Application No.: 10/791,938

Filing Date: March 3, 2004

Page: 11

Applicants further respectfully submit that Tyson, disclosing a maximum of 15% shrinkage, most certainly does not teach or suggest the recited 40 to 60 % positive heat shrinkage. Applicants further respectfully submit that the recited elevated heat shrinkages would not be expected to be suitable for Tyson's upholstering application.

Nor does Tyson disclose advantageous films in which the number of holes with a diameter of from about 2 to 6 mm is smaller than or equal to about ten per 1 000 m² of film surface, as recited in the claims as-amended.

Tyson, disclosing only positive heat shrinkages, can not teach or suggest advantageous inventive films having a negative transverse heat shrinkage, such as recited in Claim 2. And Tyson most certainly can not teach or suggest advantageous inventive films having a negative transverse heat shrinkage of from about 5 to 8 %, as recited in Claim 23.

And Tyson, requiring a fabric within its laminate, clearly can not teach or suggest advantageous inventive films consisting of one rigid polyvinyl chloride film, metallization, and, optionally one or more of coating, lacquer and printing, as recited in Claim 24 as-amended.

Accordingly, Applicants respectfully submit that the claimed invention is patentable in light of Tyson, considered either alone or in combination with the remaining art of record.

There would have been no motivation to have combined Huguen and Tyson. Huguen is directed to single ply labels that maximize functional battery volume. Tyson is directed to a method of upholstering that automates the fabric application to padded chairs and the like. Batteries and furniture are altogether different fields of endeavor. Increasing functional volume and automating manual efforts are likewise altogether different problems solved. Hence there would have been no motivation to have combined these references.

Application No.: 10/791,938

Filing Date: March 3, 2004

Page: 12

Applicants further respectfully submit that the Office Action is indulging in a purely hindsight analysis to conclude that Hughen would look to Tyson for use of hot air ovens, as noted in the previous Office Action. Applicants more specifically respectfully submit that the Office Action is incorrect in its assertion (which is presumably maintained) that hot air ovens are necessarily associated with lower cost and ease of operation in comparison to the hot air knife of Hughen. Furthermore, Hughen did not indicate that such hot air knives were in any way problematic. Furthermore, Applicants respectfully submit that, were Hughen displeased with his hot air knives, it is doubtful that he would have looked to an upholstery patent to solve his problem.

It is similarly doubtful that Hughen would have looked to films having a maximum of 15% shrink in addressing issues relating to battery-casings.

Applicants respectfully submit that the Office Action is indulging in conjecture.

However, even if Applicants had combined Hughen and Tyson (which they did not), the claimed invention would not have resulted.

The combination more specifically fails to teach or suggest the recited polyvinyl chloride film calendered alone from 180 to 60 °C in the machine direction.

Nor does the combination disclose advantageous films in which the number of holes with a diameter of from about 2 to 6 mm is smaller than or equal to about ten per 1 000 m² of film surface, as recited in the claims as-amended.

And the combination most certainly does not teach or suggest calendered films which comprise a lubricant for improving processability, as recited in Claim 14.

Application No.: 10/791,938
Filing Date: March 3, 2004
Page: 13

The combination likewise fails to teach or suggest advantageous inventive films having a negative transverse heat shrinkage of from about 5 to 8 %, as recited in Claim 23.

And the combination clearly does not teach or suggest advantageous inventive films consisting of one rigid polyvinyl chloride film, metallization, and, optionally one or more of coating, lacquer and printing, as recited in Claim 24.

Accordingly, Applicants respectfully submit that Claims 1 through 3, 5, 7, 9 through 17 and 22 through 24 are patentable in light of Huguen and Tyson, considered either alone or in combination.

Claims 12, 14 and 17 are likewise patentable over the foregoing references in view of Yoshiga.

In contrast to the moderate shrink films of the invention, Yoshiga is directed to film which is required to shrink more than 60 % (Abstract, col. 1, lines 39 to 42). In fact, the films of Yoshiga may shrink more than 80 %, if the film has been stretched at a total of stretch ratio in the longitudinal direction and transverse direction of 5.5 to 7.0 times. Yoshiga merely generically notes that its films may have "excellent" optical characteristics (col. 2, line 54).

Yoshiga, requiring its films to have a greater shrink than 60 %, does not teach or suggest the moderate shrink films recited in Claims 12, 14 and 17.

Nor does Yoshiga disclose advantageous films in which the number of holes with a diameter of from about 2 to 6 mm is smaller than or equal to about ten per 1 000 m² of film surface, as further recited in the claims as-amended.

Application No.: 10/791,938

Filing Date: March 3, 2004

Page: 14

Yoshiga, generically noting excellent optical characteristics, further fails to teach or suggest the inventive glass-clear films of Claim 12.

And Yoshiga most certainly does not teach or suggest applying a protective covering film composed of rigid polyvinyl chloride to the upper side of the inventive films, as recited in Claim 17.

Applicants respectfully reiterate that there would have been no motivation to have combined Hughen, Tyson and Yoshiga. Hughen is directed to single ply labels. Tyson is directed to an upholstery method. Yoshiga is directed to films whose composition and process conditions are chosen to impart greater than 60% shrinkage. These are altogether different fields of endeavor and problems solved, to say the least.

However, even if combined (which Applicants did not) the Claims 12, 14 and 17 would not have resulted.

The combination more particularly fails to teach or suggest the moderate shrink films recited in Claims 12, 14 and 17. In fact, Yoshiga teaches away from such films by instead requiring greater than 60% shrinkage in its films.

Nor does the combination disclose advantageous films in which the number of holes with a diameter of from about 2 to 6 mm is smaller than or equal to about ten per 1 000 m² of film surface, as further recited in the claims as-amended.

Nor does the combination teach or suggest the inventive glass-clear films recited in Claim 12.

Application No.: 10/791,938
Filing Date: March 3, 2004
Page: 15

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APR 18 2008

And the combination most certainly does not teach or suggest applying a protective covering film composed of rigid polyvinyl chloride to the upper side of the inventive films, as recited in Claim 17. In fact, Huguen, directed to single ply shrink films, clearly teaches away from such advantageous multi-layered embodiments.

Accordingly, Applicants respectfully submit that the claimed invention is likewise patentable over Huguen, Tyson and Yoshiga, considered either alone or in combination.

CONCLUSION

It is respectfully submitted that Applicants have made a significant and important contribution to the art, which is neither disclosed nor suggested in the art. It is believed that all of pending Claims 1 through 3, 5, 7, 10 through 17 and 22 through 24 are now in condition for immediate allowance. It is requested that the Examiner telephone the undersigned if any questions remain to expedite examination of this application.

It is not believed that extensions of time or fees are required, beyond those which may otherwise be provided for in documents accompanying this paper. However, in the event that additional extensions of time and/or fees are necessary to allow consideration of this paper, such extensions are hereby petitioned under 37 CFR § 1.136(a), and any fee required is hereby authorized to be charged to Deposit Account No. 50-2193.

Respectfully submitted,

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I hereby certify that this correspondence is being facsimile transmitted to the USPTO at facsimile no. (571) 273-8300 on April 18, 2008. *Claire Wygant* Claire Wygant